

ABSTRACT

The invention relates to the protection of cryptographic methods against DPA-type covert channel attacks and, in particular, to a cryptographic method during which an x^d -type modular exponentiation is performed, wherein d is a whole number exponent of $m+1$ bits. The method includes scanning the d bits from left to right in a loop subscripted by i varying between m and 0 ; and, with each revolution of rank i , calculating and saving an updated partial result equal to $x^{b(i)}$ in an accumulator ($R0$), $b(i)$ being the most significant $m-i+1$ bits of exponent d ($b(i)=d_{m>i}$). According to the invention, at the end of a revolution of randomly-selected rank $i(j)$ ($i = i(0)$), a randomization step E1 is performed, in which a random number z ($z = b(i(j)) \cdot 2^i$, $z = u$) is subtracted from part of the d bits that have not yet been used ($d_{i-1 \rightarrow 0}$) in the method. Subsequently, once the d bits modified by randomization step E1 have been used, a consolidation step E2 is performed, which involves saving ($R0 \leftarrow R1 \times R0$), in the accumulator ($R0$), the result of the multiplication of the contents of the accumulator ($x^{b(i)}$) by a number that is a function of x^z stored in a register ($R1$).